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Search for Electric Dipole Moments at COSY in Jülich - Spin Tracking Simulations using Bmad — ●VERA PONCZA^{1,2} and ANDREAS LEHRACH^{1,2} for the JEDI-Collaboration — ¹Institute for Nuclear Physics IV , FZ Jülich, Germany — ²III. Physikalisches Institut B, RWTH Aachen University, Germany

The observed matter-antimatter asymmetry in the universe cannot be explained by the Standard Model (SM) of particle physics. In order to resolve the matter dominance an additional \mathcal{CP} violating phenomenon is needed. A candidate for physics beyond the SM is a non-vanishing Electric Dipole Moment (EDM) of subatomic particles. Since permanent EDMs violate parity and time reversal symmetries, they are also \mathcal{CP} violating if the \mathcal{CPT} -theorem is assumed.

The JEDI (Jülich Electric Dipole moment Investigations) collaboration in Jülich is preparing a direct EDM measurement of protons and deuterons first at the storage ring COSY (COoler SYNchrotron) and later at a dedicated storage ring.

In order to analyse the data and to disentangle the EDM signal from systematic effects spin tracking simulations are needed. Therefore a model of COSY was implemented using the software library Bmad. It includes the measured magnet misalignments of the latest survey and a simplified description of the RF-Wien Filter device that is used for the EDM measurement. Simulation results regarding the invariant spin axis as well as closed orbit simulations will be presented.

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